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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,125	04/12/2001	William Duddleson	4728-000001	3398

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ART UNIT	PAPER NUMBER
2172	4

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)
	09/834,125	DUDDLESON ET AL.
	Examiner	Art Unit
	Joon H. Hwang	2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *12 April 2001* .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-34* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1.   The pending claims are 1-34.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-3 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Beller (U.S. Patent No. 5,852,819) in view of White et al. (U.S. Patent No.

5,918,225).

With respect to claims 1-3, Beller discloses providing analytical business reports

based on relational databases including tables each with a plurality of data fields and

denormalizing the relational database (abstract, fig. 7, and line 54 in col. 2 thru line 35 in

col. 4). Beller is silent on files containing a row number field and a single data field.

However, White discloses inverting a relational database such that data fields of tables

in the relational database are stored in separate files that contain a row number field

and a single data field, and compressing at least one of the files (abstract, fig. 3, fig. 4,

line 10 in col. 3 thru line 16 in col. 5, and line 42 in col. 43 thru line 56 in col. 44) for

obtaining in only those columns of data which are of interest in data analysis and

leading to far better data compression. White further discloses performing compression

on files contain repeating data stored in successive rows (for claim 2) and files including

a first file with a partition field and a second file with an analytical field (for claim 3) (fig.
3 and fig. 4). Therefore, based on Beller in view of White, it would have been obvious to
one having ordinary skill in the art at the time the invention was made to utilize
teachings of White to Beller in order to bring in only those columns of data, which are of
interest in data analysis.

With respect to claim 10, Beller is silent on traversing a compressed file in a
memory. However, White discloses traversing at least one of compressed files while
the compressed file is stored in memory (line 28 in col. 17 thru line 35 in col. 20) for a
memory management. Therefore, based on Beller in view of White, it would have been
obvious to one having ordinary skill in the art at the time the invention was made to
utilize teachings of White to Beller for the memory management.

With respect to claim 11, Beller discloses receiving business user requests for
business reports via a user interface (a browser) of a computer connected to a
distributed communication system (line 48 in col. 8 thru line 64 in col. 10).

4.   Claims 4, 12-17, 23-29, and 34 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Beller (U.S. Patent No. 5,852,819) in view of White et al. (U.S. Patent
No. 5,918,225), and further in view of Gossler et al. (U.S. Patent No. 5,799,173).

With respect to claim 4, Beller and White disclose the claimed subject matter as
discussed above. White further discloses a page chain, which teaches sub-rowsets of
the second file (fig. 3). Beller and White are silent on a plurality of servers for
processing data analysis. However, Gossler discloses distributing service requests to a

plurality of servers for a parallel processing of the requests (lines 10-55 in col. 1, lines 50-67 in col. 2, fig. 2, and fig. 3). Therefore, based on Beller in view of White, and further in view of Gossler, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a plurality of servers in data analysis for the parallel processing of the requests.

With respect to claim 12, Beller and White disclose the claimed subject matter as discussed above except a plurality of servers for processing data analysis. However, Gossler discloses distributing service requests to a plurality of servers using dynamic binding for a parallel processing of the requests (lines 10-55 in col. 1, lines 50-67 in col. 2, lines 1-59 in col. 3, fig. 2, and fig. 3). Therefore, based on Beller in view of White, and further in view of Gossler, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a plurality of servers in data analysis using dynamic binding for the parallel processing of the requests and the dynamic workload balancing.

With respect to claims 13-17, the limitations of claim 13-17 are similar to claims 1-3. Beller and White disclose the claimed subject matter as discussed for claims 1-3 above. White further discloses a page chain, which teaches sub-rowsets of the second file (fig. 3). Beller discloses transmitting the complete result set to a client computer (abstract and fig. 6). White further discloses run length recording (for claim 15) (lines 31-44 in col. 14). Beller and White are silent on a plurality of servers for processing data analysis. However, Gossler discloses distributing service requests to a plurality of servers for a parallel processing of the requests (lines 10-55 in col. 1, lines 50-67 in col.

2, fig. 2, and fig. 3). Therefore, based on Beller in view of White, and further in view of

Gossler, it would have been obvious to one having ordinary skill in the art at the time the

invention was made to utilize a plurality of servers in data analysis for the parallel

processing of the requests.

With respect to claim 23, White further discloses traversing at least one of

compressed files while the compressed file is stored in memory (line 28 in col. 17 thru

line 35 in col. 20) for a memory management.

With respect to claim 24, Beller discloses receiving business user requests for

business reports via a user interface (a browser) of a computer connected to a

distributed communication system (line 48 in col. 8 thru line 64 in col. 10).

With respect to claim 25, Beller and White disclose the claimed subject matter as

discussed above except a plurality of servers for processing data analysis. However,

Gossler discloses distributing service requests to a plurality of servers using dynamic

binding for a parallel processing of the requests (lines 10-55 in col. 1, lines 50-67 in col.

2, lines 1-59 in col. 3, fig. 2, and fig. 3). Therefore, based on Beller in view of White,

and further in view of Gossler, it would have been obvious to one having ordinary skill in

the art at the time the invention was made to utilize a plurality of servers in data analysis

using dynamic binding for the parallel processing of the requests and the dynamic

workload balancing.

With respect to claim 26, Beller and White disclose the claimed subject matter as

discussed above except determining a number of servers to process the request.

However, Gossler discloses determining a number of servers to process the request

(abstract and line 1 in col. 3 thru line 65 in col. 4) for a high performance of data

processing and a low system overhead. Therefore, based on Beller in view of White,

and further in view of Gossler, it would have been obvious to one having ordinary skill in

the art at the time the invention was made to determine a number of servers to process

the request for a high performance of data processing and a low system overhead.

With respect to claim 27, the limitations of claim 27 are similar to claims 1-3.

Beller and White disclose the claimed subject matter as discussed for claims 1-3 above.

White further discloses a page chain, which teaches sub-rowsets of the second file (fig.

3). Beller and White are silent on a plurality of servers for processing data analysis.

However, Gossler discloses distributing service requests to a plurality of servers for a

parallel processing of the requests (lines 10-55 in col. 1, lines 50-67 in col. 2, fig. 2, and

fig. 3). Therefore, based on Beller in view of White, and further in view of Gossler, it

would have been obvious to one having ordinary skill in the art at the time the invention

was made to utilize a plurality of servers in data analysis for the parallel processing of

the requests.

With respect to claim 28, Beller and White disclose the claimed subject matter as

discussed above except determining a number of servers to process the request.

However, Gossler discloses determining a number of servers to process the request

(abstract and line 1 in col. 3 thru line 65 in col. 4) for a high performance of data

processing and a low system overhead. Therefore, based on Beller in view of White,

and further in view of Gossler, it would have been obvious to one having ordinary skill in

the art at the time the invention was made to determine a number of servers to process

the request for a high performance of data processing and a low system overhead.

With respect to claim 29, White discloses files including a first file with a partition

field and a second file with an analytical field (fig. 3 and fig. 4).

With respect to claim 34, White discloses traversing compressed files while the

compressed files are stored in memory (line 28 in col. 17 thru line 35 in col. 20) for a

memory management.

5.   Claims 5-9, 18-22, and 30-33 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Beller (U.S. Patent No. 5,852,819) in view of White et al. (U.S. Patent

No. 5,918,225) and Gossler et al. (U.S. Patent No. 5,799,173), and further in view of

DuMouchel et al. (U.S. Patent No. 6,539,391).

With respect to claim 5, Beller and White disclose the claimed subject matter as

discussed above. White further discloses a page chain, which teaches sub-rowsets of

the second file, the partition field (fig. 3). Beller and White are silent on a plurality of

servers for processing data analysis. However, Gossler discloses distributing service

requests to a plurality of servers for a parallel processing of the requests (lines 10-55 in

col. 1, lines 50-67 in col. 2, fig. 2, and fig. 3). Beller, White, and Gossler is silent on

servers identifying unique partition value in the sub-rowsets. However, DuMouchel

discloses partitioning data into bins based on categorical variables of the data in data

mining concerning identifying unique partition value (lines 1-18 in col. 2, line 4 in col. 3

thru line 4 in col. 5, and line 36 in col. 7 thru line 55 in col. 10) for data squashing.

Therefore, based on Beller in view of White and Gossler, and further in view of

DuMouchel, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to utilize a plurality of servers to identify unique partition value

for the parallel processing of partitioning based on categorical variables in data analysis.

With respect to claim 6, DuMouchel further discloses categorical partition bins,

which teaches merged unique partition values (lines 1-18 in col. 2, line 4 in col. 3 thru

line 4 in col. 5, and line 36 in col. 7 thru line 55 in col. 10). Gossler further discloses a

server can issue service requests to other servers (lines 50-67 in col. 2, lines 22-37 in

col. 3). Beller further discloses processing analytical data (lines 21-29 in col. 4, lines

52-64 in col. 19, and lines 48-67 in col. 21). Therefore, the limitations of claim 6 are

rejected in the analysis of claim 5 above, and the claim is rejected on that basis.

With respect to claim 7, Beller further discloses processing analytical data and

reporting (lines 21-29 in col. 4, lines 52-64 in col. 19, lines 48-67 in col. 21, line 49 in

col. 28 thru line 49 in col. 30, and lines 34-39 in col. 31).

With respect to claim 8, Beller discloses annotating the result set (lines 55-67 in

col. 25, lines 1-12 in col. 26, and line 49 in col. 28 thru line 49 in col. 30).

With respect to claim 9, Beller discloses transmitting the complete result set to a

client computer (abstract and fig. 6).

The limitations of claims 18-22 are rejected in the analysis of claims 5-9 above,

and these claims are rejected on that basis.

The limitations of claims 30-33 are rejected in the analysis of claims 5-9 above,

and these claims are rejected on that basis.

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Goil et al. ("High performance data mining using data cubes on parallel

computers", 1998, IEEE, pages 548-555) and Goil et al. ("A parallel scalable

infrastructure for OLAP and data mining", 1999, IEEE, pages 178-186) disclose data

mining. Ramasamy et al. (U.S. Patent No. 6,567,803) discloses olap. Stellwagen, Jr.

(U.S. Patent No. 5,835,755), Rierden et al. (U.S. Patent No. 5,978,577), and Miller et al.

(U.S. Patent No. 6,553,366) disclose a database server. Agrawal et al. (U.S. Patent No.

5,724,573) discloses partitioning.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joon H. Hwang whose telephone number is 703-305-

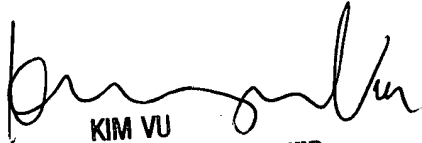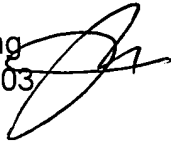6469. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Y Vu can be reached on 703-305-4393. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-746-7239 for

regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

Joon Hwang
July 27, 2003

KIM VU
SUPERVISORY PATENT EXAMINER
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